

must have definite solutions. But M. Bloch does not adequately discuss the postulates involved, or consider how, from a modern point of view, one could justify practically a procedure such as Newton's. He seems more or less unaware of the gulf which nowadays separates the pure mathematician's account of the calculus from the physicist's use of it, and therefore cannot deal thoroughly with the very interesting question as to how this gulf is to be bridged. To take another illustration; he gives an account of Newton's views on absolute space, time, and motion, and quotes the experiment of the rotating bucket of water, by which absolute rotations are to be discovered. But instead of endeavouring, after the example of many previous writers, to refute in detail the inferences drawn by Newton from this experiment, he contents himself with pointing out the dynamical irrelevance of absolute *translation*, and extending this by means of generalities to absolute *rotation*. The truth seems to be that he, in common with many moderns, is here indulging in an hypothesis of just that kind which Newton endeavoured to avoid: absolute rotation is impossible *a priori*; therefore, if the facts require it, so much the worse for the facts.

There are an unusual number of misprints, and some of them seem to be among the references. In spite of blemishes, however, the book is careful and erudite, and on the historical side very useful.

OUR BOOK SHELF.

The Common Bacterial Infections of the Digestive Tract and the Intoxications arising from Them. By Prof. C. A. Herter. Pp. xii+360. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1907.) Price 6s. 6d. net.

THIS book forms a valuable summary of our knowledge of many of the bacterial infections of the digestive tract, and of the conditions resulting therefrom—valuable alike to the bacteriologist, the chemist, and the clinician. It commences with a review of the normal bacterial flora of the digestive tract, and the significance of the presence of bacteria is first discussed. It is shown that the intestinal bacteria are not required to carry on the ordinary digestive processes and normal nutrition, and the conclusion is formulated that the chief significance of the obligatory intestinal bacteria lies in their potential capacity for checking the development of other types of organisms capable of doing injury.

An interesting section deals with the differences in the bacterial flora of the intestine in nurslings and in bottle-fed infants; the number of bacteria is found to be considerably greater in the latter, and a majority of the organisms present are Gram-negative instead of Gram-positive, as is the case in nurslings. Another feature of interest which is well brought out is that in old age a greater number of putrefactive bacteria are present than in youth. The origin and precise significance of this difference is not yet clear, but it suggests that intestinal infections stand in a causative relation to old age, an hypothesis recently advanced by Metchnikoff, and the author confidently states that the onset of senility may be distinctly accelerated through the development of intestinal infections in which putrefactive anaerobes are prominently represented. A number of details are given for the analysis

of the intestinal contents, and of the significance of the data derived therefrom, together with hints as to treatment.

R. T. HEWLETT.

National Antarctic Expedition, 1901-4. "The Charts of the Discovery Antarctic Expedition." By Lieut. G. F. A. Mulock. (London: Royal Geographical Society, 1908.)

THE charts illustrating the work of the National Antarctic Expedition, compiled by Lieut. G. F. A. Mulock, R.N., surveyor and cartographer to the expedition, have now been issued by the Geographical Society in the form of one of its supplementary publications. The series consists of a general chart of the Ross Sea and its coasts, and five on a larger scale showing the detailed geographical work of the expedition. The maps are clearly printed in three colours, the ice-coloured regions being shown in blue, the bare rocks in brown, and routes and altitudes in red; they are folded, and issued in a convenient cloth case, 10 inches high by 6 $\frac{3}{4}$ inches wide. They are accompanied by a short statement of eight pages recording the methods of survey and chief determinations, in which Lieut. Mulock gives credit to his colleagues for their contributions to the work, referring especially to Ferrar's survey of the Ferrar glacier, Bernacchi's determination of the longitude of the winter quarters, Dr. Wilson's sketches of the coast, and Lieut. Skelton's photographs.

The three charts of most interest are those including the Great Ice Barrier and the route of Captain Scott's remarkable sledge journey on to the plateau of southern Victoria Land. Lieut. Mulock retains the name the Great Ice Barrier, and adopts it for the whole ice sheet of which Ross discovered the northern face. Notes on the chart direct attention to the convincing evidence that the edge of this ice sheet is floating, and also of its recession at one place for twenty-three miles since it was discovered by Ross. Confidence in the latter fact is strengthened by Lieut. Mulock's testimony to the remarkable accuracy of Ross's positions. On a second chart the author shows the extension of Ross's Great Ice Barrier to the south, with the route of Scott and his two companions to their farthest south at the entrance to Shackleton Inlet, and of the face of the mountains on the western coast of that part of Antarctica.

Lieut. Mulock is to be congratulated on the skill and care with which he has incorporated all the observations of the expedition into this important series of charts, which are a most valuable addition to Antarctic cartography.

J. W. G.

Archhelenis und Archinotis. Gesammelte Beiträge zur Geschichte der neotropischen Region. By Herman von Ihering. Pp. iv+350. (Leipzig: W. Engelmann, 1907.) Price 6 marks.

Few and far between are the naturalists in South America. But there are exceptions even to this rule. Good work has been done of late years in Buenos Ayres and Pará, and the author of the present volume has not failed to avail himself of the abundant opportunities offered to him for research by the luxuriant fauna and flora of his adopted country. Dr. Herman von Ihering, the energetic director of the Museu Paulista at São Paulo, is well known to us in Europe by his essays on various subjects connected with the distribution of life in different parts of the world, particularly as regards the neotropical region. He has now collected these essays and reprinted them with additions in a uniform shape under the curious title which we give above. "Archhelenis" and "Archinotis" are names invented to designate the two principal continents which the author believes to

have existed in the age of the Chalk, as shown in the map at the end of the volume. Three corresponding names (*Archiplata*, *Archibrasilia*, and *Archiguania*) are proposed for the ancient bosses from which the whole continent of South America appears to have been developed, and are explained according to the author's views in his essay on the palæogeography of that region.

Three chapters of Dr. von Ihering's volume treat of the geographical distribution of river-mussels, and are also of some importance, as the author is a leading authority on this subject. Written in 1890, they were translated into English and re-published in the *New Zealand Journal of Science*. The fresh-water molluscs of Chili show many points of affinity to those of New Zealand, and the author agrees with Captain Hutton's views that in the Lower Cretaceous period a large Pacific continent must have extended from New Guinea to Chili, and sent out a peninsula to include New Zealand.

Those who are engaged in the study of the difficult problems presented by palæogeography will do well to consult the memoirs collected by the author in the present volume.

The Moon, a Popular Treatise. By Garrett P. Serviss. Pp. xii+248; illustrated. (London: Sidney Appleton, 1908.) Price 6s. net.

In describing the Yerkes photographs of the moon Mr. Serviss has had a pleasant task, and has performed it with pleasing results. The text involves a selenologist, a lady questioner, and the excellent photographs of the moon taken on successive evenings throughout an entire lunation by Mr. Wallace with the 12-inch telescope of the Yerkes Observatory. The author has managed to keep the questions in the background whilst making the answers very lucid and impressive. In an introductory chapter the dialogue turns on the distance, size, motions, &c., of our satellite; thenceforward it takes each photograph of the moon in turn, and gives a simple, straightforward account, in popular language, of the various features, introducing, at well-timed intervals, asides on geometrical, photometrical, and such-like questions. Then follows a chapter (iv) dealing with some of the larger individual features of the lunar surface, as shown on the large-scale photographs taken by Mr. Ritchey with the Yerkes 40-inch refractor.

The exquisite photographs—well reproduced—and the easily readable text of this volume should ensure it a welcome from all classes of readers, whether they be astronomers or not. There are twenty-one photographs in the first series and five of the enlarged portions, besides a number of diagrams in the text.

W. E. R.

The Apodous Holothurians. By H. L. Clark. Smithsonian Contributions to Knowledge. Part of vol. xxxv. Pp. 231. (Washington: Smithsonian Institution, 1907.)

The author of this valuable memoir has had the advantage of studying more than two thousand specimens of the species included in the families Synaptidæ and Molpodadiidæ, and he has taken the opportunity of collecting together in the form of a handsome volume the information we possess concerning all the species of this interesting group. There are three coloured and ten monochrome plates of figures, illustrating the form and anatomy of the different species, of which several are original, and the others copied from the works of Semper, Theel, Sluiter, and other zoologists. Eight new genera are described, and a new generic name is proposed for an old genus. The monograph will undoubtedly be of great service to all those who are interested in the study of the Echinodermata.

LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Elimination of Self-coloured Birds.

STATISTICAL data on the real value of colour markings in the survival of animals in the field are so uncommon that the publication of the following fragment may be excused.

At the Station for Experimental Evolution, about 300 chicks of from five to eight weeks of age on May 10 were running at large on a well-cropped pasture about three acres in area. For the most part, within the space of less than two hours, twenty-four of these were slaughtered by three crows which were caught in the midst of their work of chasing and killing the young poultry. A close estimate of the fowl as they ran at large shows that about 40 per cent. were of a white plumage, 40 per cent. black or nearly so, and 20 per cent. had a pencilled or striped marking more or less like that of the female jungle fowl or ordinary game. The interesting question arose, Was there any elimination on the ground of colour by the crows? Did any colour favour the escape from observation of any of the chicks?

Were there no selective elimination, expectation on the ground of chance is that of the twenty-four killed 9·6 would be white, 9·6 black, and about five pencilled. Actually, there were killed ten whites, thirteen blacks or prevailingly so, and one coarsely mottled grey and buff. No true pencilled bird was killed! The killed birds were largely Leghorns, Minorcas (both good fliers); the pencilled birds were partly games (good fliers), but mostly dark Brahmans (poor fliers). The race is not always to the swift! This fragment, then, so far as it goes, indicates that the self-colours of poultry, which have arisen under domestication, tend to be eliminated by the natural enemies of these birds, and the pencilled birds are relatively immune from attack because relatively inconspicuous.

CHAS. B. DAVENPORT.

Carnegie Institution of Washington, Station for Experimental Evolution, Cold Spring Harbour, N.Y.

"Barisal Guns" in Western Australia.

IN NATURE of October 31, 1895, Sir George Darwin, in a letter on "barisal guns," "mist puffers," and allied noises, desires all those hearing such to record them from time to time. Recently an instance, which may be of this nature, came under my notice, the only apparent difference being that it was a single noise, and was not repeated several times.

It happened that in July, 1907, I was dispatched by the Government of Western Australia to a remote portion of the north-west of that State to carry out certain investigations. We were camped for two months on the Strelley River (lat. 20° S.)—which only runs in flood-time—sixty miles from Port Hedland, and the same distance from Marble Bar. The situation was a desert "spinifex" plain, with occasional low hillocks of granite boulders, and uninhabited, save by occasional sheep and cattle stations, between the two places mentioned. At approximately 8.35 p.m., mid-West Australian time, on Friday, August 9, I was lying in the tent when, in the words of my diary, "we suddenly heard a dull roar lasting several seconds, increasing in loudness and then decreasing. Everyone heard it and looked round. The sky was quite clear, and there were no signs of thunder clouds. There was no apparent tremor. I thought the noise came from the S.E., others from the N.E. Some suggested it was the rumble of a herd of cattle galloping over a clay pan with hollow ground beneath, as they hear similar noises in the Kimberley District (W. Australia). Mr. G. and I wonder if it is due to a volcanic eruption somewhere, as that of Krakatoa was heard not very far from here." Next day